Chapter 3

COMMAND, CONTROL, AND COMMUNICATIONS

This chapter covers how aviation commanders, aviation maintenance commanders, and their staffs communicate and control elements of their commands. Aviation elements can fight and operate like other maneuver elements. In most cases, they will be required to operate with their forces spread laterally and in-depth throughout the battlefield. Communications requirements will exceed 300 kilometers in some theaters of operations and will encompass secure voice and data transmissions. Planning and supporting elements will need to identify current and future operations to coordinate maneuver and support.

SECTION I – COMMAND AND CONTROL

AVIATION BRIGADE AND/OR BATTALION STAFF

3-1. The aviation brigade/battalion staff is composed basically like any other brigade/battalion with personnel specifically ordered or detailed to assist the commander in the exercise of command. Figure 3-1 shows the staff structure, which consists of personal, coordinating, and special staffs (the special staff applies primarily to the brigade). Staff member skills and roles are detailed in FM 5-20(101-5). Key functions of S3 and S4 sections are briefly discussed below. The coordination between these sections is critical to aviation maintenance operations.

S3 SECTION

3-2. The S3 section is the commander's principal section for matters that pertain to organizing, employing, training, and operating brigade/battalion and supporting elements. It locates in the brigade/battalion tactical CP and assists the commander in fighting the ongoing battle. When not deployed forward, the S3 serves as the officer-in-charge of the tactical CP. He supervises the tactical CP to control the battle and provide the commander with combat-critical information. The NBC and CE officers normally work directly for the S3. The S3 must maintain close coordination with the S4 to keep abreast of the CSS status. The S3 ensures his personnel are trained, and his equipment is maintained to support the brigade XO in the TOC. The S3 will—

- Integrate fire support.
- Establish communications priorities.
- Maintain the troops list (FM 5-20[101-5]).
- Monitor and control tactical operations.

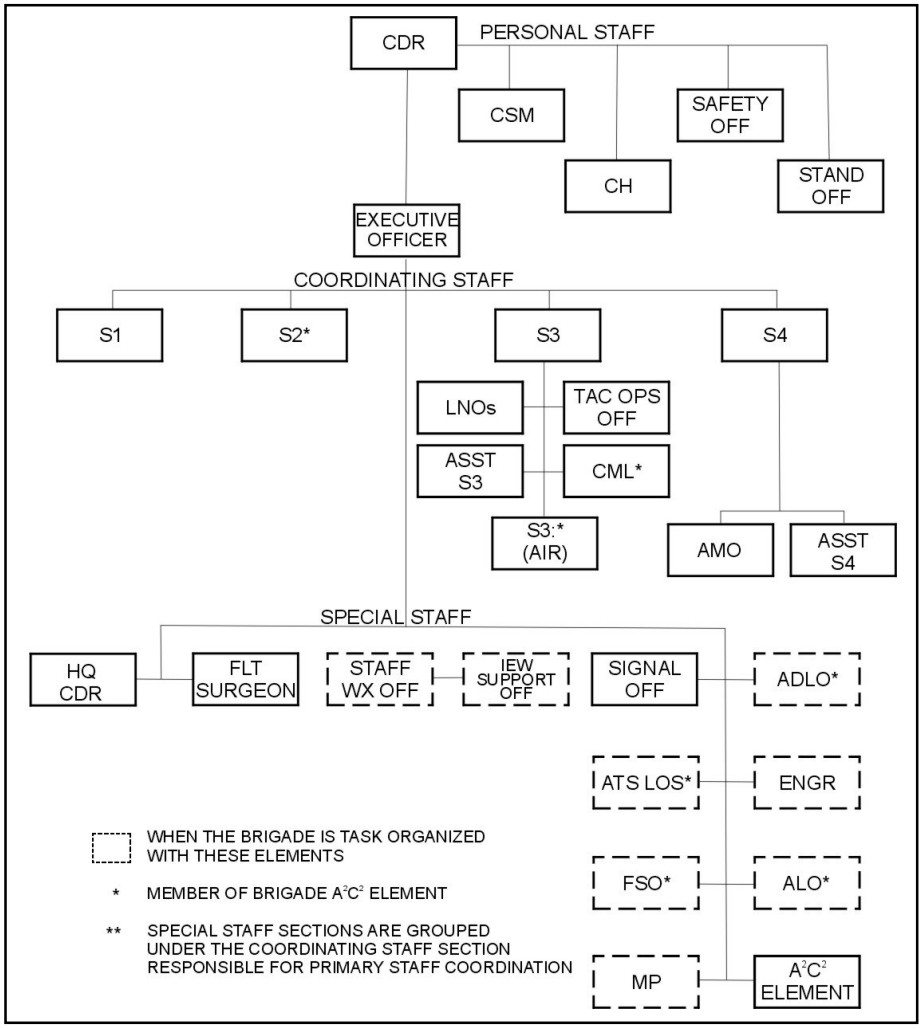

Figure 3-1. Aviation Brigade and/or Battalion Staff Structure

- Coordinate and supervise OPSEC (FM 4-93.1[63-1]).
- Plan and supervise EW activities (FM 2-19.3[34-10]).
- Develop and supervise training programs (FM 5-20[101-5]).
- Plan and supervise psychological operations (FM 4-93.1[63-1]).
- Develop and supervise deception requirements (FM 2-19.3[34-10]).
- Predict fallout from nuclear weapons (FM 3-11.3[3-3]).
- Select the general location for the TOC or CP.
- Prepare the tactical movement plan and supervise movements.
- Coordinate and supervise the rear operations area.
- Prepare operation estimates (FM 5-20[101-5], Chapter 5, and Appendix E).
- Coordinate unit replacements, attachments, or detachments (FM 5-20[101-5]).

- Coordinate and control civil-military operations (FM 3-57[41-10] and FM 5-20[101-5], Appendix A).
- Coordinate and publish OPLANs, OPORDs, and FRAGOs (FM 5-20[101-5], Chapters 6 and 7, and Appendix G).
- Advise the commander on combat and CS matters and on organization and training (FM 5-20[101-5]).

S4 SECTION

3-3. The S4 section must thoroughly understand the commander's intent and initiate timely actions to support that intent. The brigade/battalion S4 section provides the commander with information on all logistics matters. It coordinates with the battalion S4s and unit aircraft maintenance officers about the status of equipment and supplies, particularly Classes I, III, V, and IX, and the capabilities of the trains. The S4 is responsible for operating the train elements and the rear CP and for directing their displacement. The S4 works in the brigade support area and with the S1 in the ALOC. In a heavy division, the S4 coordinates with the DASB SPO for all DS support. In divisions other than heavy, the S4 coordinates DS with the main support battalion SPO or the DISCOM SPO. The corps aviation brigade S4 coordinates with the corps support battalion SPO operating in the CSA. The S4 will—

- Plan field services.
- Maintain supply status.
- Plan and control administrative moves.
- Maintain maintenance status.
- Plan maintenance requirements (FM 4-93.3[63-3]).
- Plan and coordinate transportation requirements (FM 4-93.3[63-3]).
- Prepare logistics estimate (FM 5-20[101-5], Appendix E).
- Determine civilian labor requirements for logistics support (FM 5-20[101-5]).
- Collect and dispose of excess property, salvage, and captured material (FM 5-20[101-5]).
- Prepare logistics orders, plans, annexes, and paragraph 4 of OPORD or OPLAN (FM 5-20[101-5], Chapters 6 and 7, and Appendix G).

COMMAND POSTS

3-4. Aviation logisticians must know the organization and structure of aviation CPs, especially the rear CP. Figure 3-2 shows a typical C^2 network for the aviation brigade. The network will be modified to meet the situation. The brigade rear CP coordinates the CSS required to sustain the brigade. It may be located within the corps/division support area or at a separate location in the rear area of the corps/division AO.

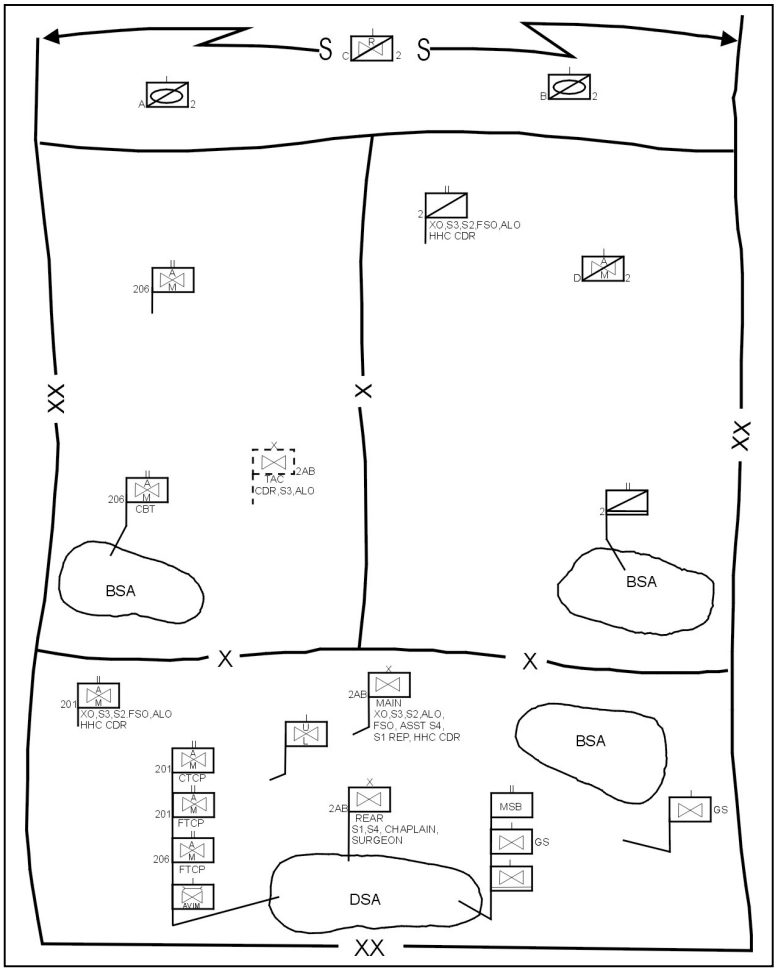

Figure 3-2. Typical Aviation Brigade Command and Control Network

3-5. The brigade/battalion XO controls the operations of the rear area. The S4 maintains continuous contact with the assistant S4 in the main CP to coordinate required support. Refer to Figure 3-2 for a typical arrangement of the rear area.

SUPPORTING COMMANDS AND STAFFS

3-6. The responsibilities, functions, and relationships of support commanders, their staffs, and subordinate commanders are discussed in general in the following paragraphs. Specific details are provided in appropriate chapters of this manual or in other doctrinal FM identified in this manual.

AVIATION INTERMEDIATE MAINTENANCE BATTALION/COMPANY COMMANDER

3-7. The AVIM battalion/company commander performs the following duties:

- Advises and assists the TSC, COSCOM, or DISCOM commanders and staff on AVIM operations.
- Has oversite and responsibility for planning, executing, and evaluating all AVIM training according to FM 7-10(25-101).

- Advises and assists the support commander and staff in determining requirements for AVIM operations and support.
- AVIM material management is coordinated with the DMMC, CMMC, or TSC MMC.
- Provides a liaison element to the support command staff when required.
- Represents, when directed or authorized, the support commander by providing advice and assistance to the aviation brigade or aviation taskforce commander and staff on AVIM operations that the AVIM battalion/company will support.

3-8. On routine matters, this officer may be authorized to provide advice, information, and assistance to the G4. However, in cases having significant impact on the ability of the support commander to accomplish his mission, the support commander normally retains authority for approval before action. The AVIM battalion/company commander must inform the support commander of all commitments made. See Appendix I for aviation maintenance commander's checklist.

COMMAND RELATIONSHIPS (AVIM CO/BN, DASB, AND AB)

3-9. While the AVIM CO/BN or DASB provide AVIM support to the AB, they remain under the command of the support commander (Figure 3-3). They give priority to AVIM support required by the AB. In this role the AVIM CO/BN or DASB—

- Responds directly to AB AVIM work load requirements.
- Has the same zone of action as the AB, although its base of operations may not lie within it.
- Furnishes liaison to the AB and receives AVIM priorities from the AB.
- Establishes communications with the AB.
- Operates from positions within reasonable response time to the AB.
- Provides technical advice and assistance to the AB.

SUPPORT COMMANDER (DISCOM OR COSCOM) AND AVIATION BRIGADE COMMANDER

3-10. The AB commander and the support commander work together to ensure recognition of the brigade's logistics needs. One of the primary concerns of the support commander for the AB is aviation intermediate maintenance.

3-11. The support commander provides the AB commander with AVIM support through the AVIM CO/BN or DASB. This includes aircraft armament and avionics repair, aircraft repair parts supply, and aircraft recovery and evacuation. The AVIM CO/BN or DASB also operates an aviation repairable exchange and maintains operational readiness floats for selected aviation items.

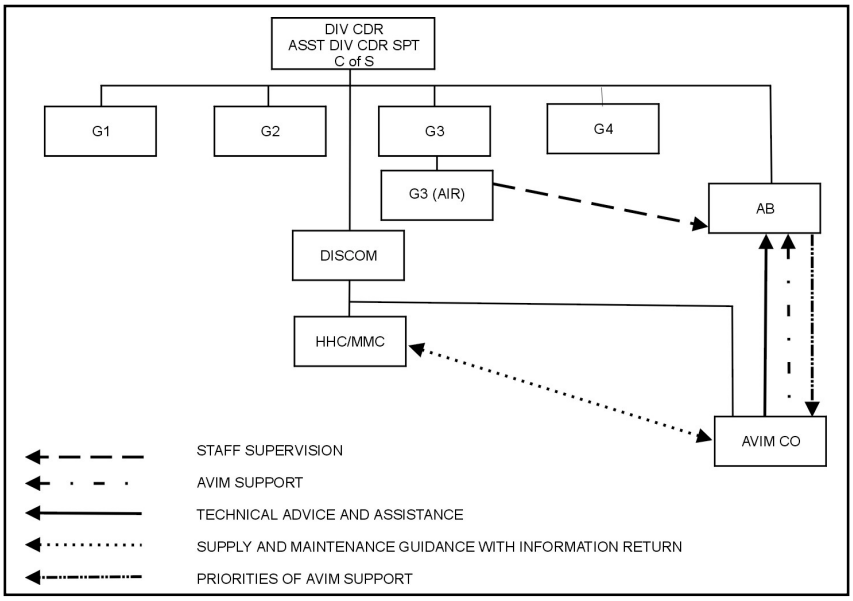

Figure 3-3. Division Support Command Relationships

3-12. The AB AMO is the principal staff officer for the AB commander in matters of aircraft maintenance. AVIM CO/BN or DASB PC officers and SPOs routinely provide advice and assistance to the AB AMO. As the aircraft maintenance planner, the AB AMO maintains close, continuous coordination with AVIM CO/BN or DASB PC officers and SPOs. The AB AMO is the focal point for planning and coordinating aircraft maintenance support for the AB within the AB commander's priorities and allocation of support. The AVIM CO/BN or DASB provides AVIM according to priorities set by the AB commander.

3-13. The AB commander must ensure that the AB AMO works closely with the support command's SPO or AVIM PC for AVIM planning and execution.

3-14. Technical advice and assistance are available to the AB AMO from the AVIM CO/BN or DASB SPOs and PC officers to assist in planning AB aircraft maintenance operations. Similarly, AVUM units can obtain technical advice and assistance from the AVIM CO/BN or DASB to execute plans developed by the AB AMO.

3-15. AB AVUM units have a day-to-day working relationship with the AVIM CO/BN or DASB PC officers. The AVIM PC officers routinely keep the AB AMO informed of their respective AVUM workloads. In this manner, the AB AMO always knows the aircraft maintenance posture of the AB.

3-16. The AB employs its aviation assets throughout the entire division or corps AO. AB elements, therefore, require area support of logistics and medical functions while supporting the division or corps commander's intent or scheme of maneuver. This area support requires close coordination between the support command and the AB. For example, the heavy division AB and its subordinate battalions receive their DS CSS from the DASB. In divisions other than heavy, the AB and its subordinate battalions receive their DS CSS from the main support battalion in the DSA. In some situations within the division AO, an attack or lift battalion may receive their DS CSS from a FSB in a nearby BSA. The divisional cavalry squadron usually receives its DS support from the closest

FSB and AVIM support from an AMCO or DASB in the DSA. In the corps AO, the corps AB and its subordinate aviation battalions receive their DS CSS from a supporting DS CSB. The ACR air squadron operating in the division AO receives its DS CSS from a CSB or from corps MSTs tailored to meet its needs in the forward areas.

3-17. The divisional AB XO or S4 usually coordinates with the MSB or DASB SPO for DS logistics support. The corps AB XO or S4 coordinate with the CSB SPO for DS logistics support.

3-18. The division or corps commanders, through their G4s, establish CSS priorities for all brigade size units. The most critical logistics functions for the aviation brigades are FIX (aircraft maintenance, recovery, and evacuation), fuel (Class III), and armament (Class V).

SECTION II – COMMUNICATIONS AND/OR DATA

COMMUNICATIONS

3-19. The mobility and flexibility of aviation units place increasing demands on reliable, timely, secure, and long-range communications. Radio is a primary means of communication for aviation assets. Other means include multichannel radio, satellite, messenger, wire, sound, e-mail, cordless telephones, and visual communications. Although all of these may be used extensively in combat operations, they will normally complement radio or provide an alternate means of communication. Aviation units maintain both external communications with their echelon and internal communications with their subordinate units for C^2. External communication ranges may exceed 300 km in some theaters of operations. Key communication nets for aviation, aviation maintenance, and supporting units are illustrated in Appendix J. Nets will vary with unit missions and TOE.

NETWORKS

3-20. Effective, reliable communications are essential for commanders and their staffs to C^2 their assets. Communications are composed of external nets and internal nets, including telephone systems.

External

3-21. Personnel with aviation logistics responsibilities and functions access the communications system through—

- Multichannel radio.
- Single-channel radio, including AM and FM.
- NRI.
- Mobile Subscriber Equipment.
- Messenger.
- Command and/or Operations FM. Commanders and operations personnel are required to monitor this FM net. The net is normally established first for tactical control and combat coordination. It is also used to report tactical data of immediate command and operational value.

- Administrative and/or Logistics. Logistics and administrative personnel monitor this FM net. This net should only be used for sending short messages because of the radio signature that is emitted. (Normally controlled by the S4.)
- Intelligence FM. The G2s and S2s enter this FM net; the echelon G2 controls it. The net is used for passing intelligence data and as a backup for the command net.
- Operations high-frequency (Voice). The S2s and S3s enter this HF (voice) net; it is controlled by the echelon G3. The net maybe interfaced with the echelon's multichannel system if the radio is changed to the NRI frequency. It provides long-range communications for critical operational information.
- Operations FM or improved high-frequency radio. This net is used to pass orders and information to control rear operations. The NCS of this net is the rear area operations center. This net structure will extend from existing nets below brigade level.

Internal Radio

3-22. Internal radio nets are established and controlled by the parent element (battalion controls companies; company controls platoons). They meet command, control, and logistics requirements within the organization and its subordinate units.

3-23. **Command and/or Operations FM.** The S3 enters this FM net. The NCS is normally located at the main CP. This net is reserved for the commander and subordinate unit commanders who report directly to him.

3-24. **Administrative and/or Logistics.** The S1s, S4s, CEOs, and AMCOs enter this FM net. The net is used to exchange administrative or logistics requests with subordinate units.

3-25. **Telephone.** Aviation units also establish and control telephone nets. Wire communications allow internal communications with all sections of the company. Wire connection to the nearest tie-into the area common user system (multi-channel) provides necessary communications from the AMCO to the DISCOM and AB switchboards.

AUTOMATIC DATA PROCESSING CONTINUITY-OF-OPERATIONS PLAN

3-26. Specific guidance for each functional computer system is in the user's manual for the system. These manuals require the development of COOP. The developer of a COOP will usually consider threat and risk analysis; work load priorities; protection of files, programs, and documentation; and alternate site operation.

THREAT AND RISK ANALYSIS

3-27. This analysis should identify and evaluate the major threats to the division's CSS computer systems. It should measure the risk the commander is prepared to accept for each threat. Action can then be taken to reduce the risk related to each threat. Continued ADP functions in emergency or wartime conditions are equal in importance to the supported users' roles.

WORK LOAD PRIORITIES

3-28. Users should work together to determine the priority of the systems which the CSS computer system supports. This effort must recognize that under emergency conditions CSS computers might not be able to continue their usual level of support to all users. In addition, note that turnaround time will be longer and user missions may change.

PROTECTION OF FILES, PROGRAMS, AND DOCUMENTATION

3-29. There should be at least two copies of each major file, program, or procedure. If one is damaged or destroyed, the second can be used to continue the ADP functions. For best protection, the second copy should be stored at a separate location fairly close to its host computer. The storage site, however, should not be so close that it renders both sites vulnerable to the same threat. Procedures must be established to update the material stored at separate locations.

ALTERNATE-SITE OPERATION

3-30. The use of compatible automatic data processing equipment is usually the best backup solution, especially for long outages. The COOP should identify one or more alternate sites. First thought should be given to other CSS computers with similar equipment and missions. This will take advantage of similar equipment, software, and personnel skills. Selection of an alternate site depends on a number of factors. One factor is the compatibility of equipment with software. Another is the convenience of the potential site for the communication and transportation of inputs and outputs. Another factor is the vulnerability of the alternate site to the same threats as the supported site.

3-31. Once the COOP has been developed, it should be reviewed and updated at least annually. This review should include testing portions of the COOP. If possible, these tests should provide for actual movement to the alternate site and should test the use of backup materials. CSS computer systems should be moved periodically to ensure their mobile performance. Regardless of the cause or duration of an ADP outage, continuity-of-operations procedures can lessen the impact of the outage and ensure that critical CSS functions are accomplished.